

2016-2017 Influenza Season (10/02/2016 – 9/30/2017)

Synopsis:

Influenza activity is elevated in Arizona. Arizona reported Regional Activity for week 11.

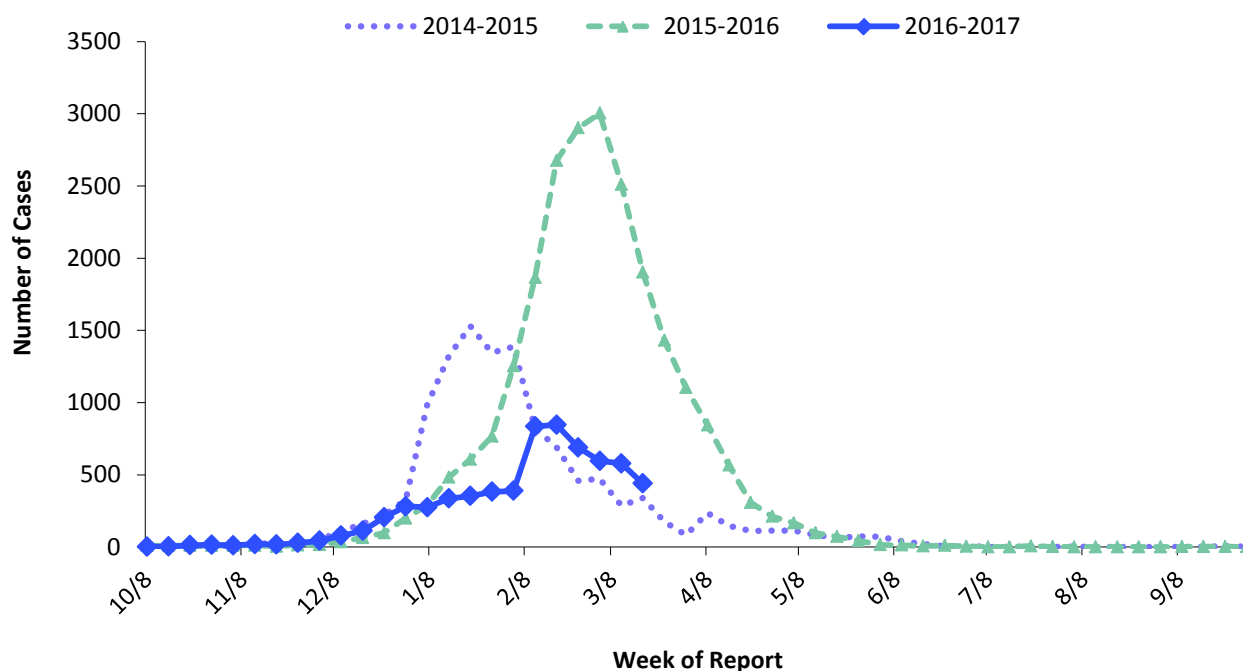
Influenza activity highlights:

- 440 laboratory-confirmed cases of influenza were reported in the past week, from fourteen counties. 6,559 cases have been reported this season, with laboratory-confirmed cases identified in fifteen counties.
- 5,649 (86%) reports this season are influenza A, 767 (12%) are influenza B, and 143 (2%) are of unknown type.
- 10 (77%) of 13 specimens tested positive for influenza at ASPHL last week: 2 influenza B/Victoria viruses and 8 influenza B/Yamagata viruses.
- One influenza-associated pediatric death has been reported for the 2016-2017 season in a Pima County resident. This case was PCR positive for influenza A (H3).
- Influenza-like illness activity at sentinel providers was above Arizona's threshold in week 10.
- The cases included in this report represent a small proportion of the true number of cases of influenza. Many people do not visit the doctor when ill and doctors should not be expected to run tests on all patients exhibiting influenza-like symptoms.

Laboratory-Confirmed Influenza Activity by Season [2014-2017]

Positive influenza tests are reported to ADHS. Many types of tests are included in the numbers below: rapid antigen tests, direct fluorescent antigen tests, viral culture, and molecular testing.

Number of Lab-Confirmed Influenza Cases Reported, by Week of Report: 2014-2017



Reported Laboratory-Confirmed Cases Compared to Last Week and Last Season

	Cumulative Season Total	Current Week Total
2016-2017	6,559	440
2015-2016	18,756	1,903
5 year average	10,165	605
% increase, compared to 2015-2016 season	-65%	-77%
% increase, compared to a typical flu season	-35%	-27%
% increase, compared to last week	7%	-24%

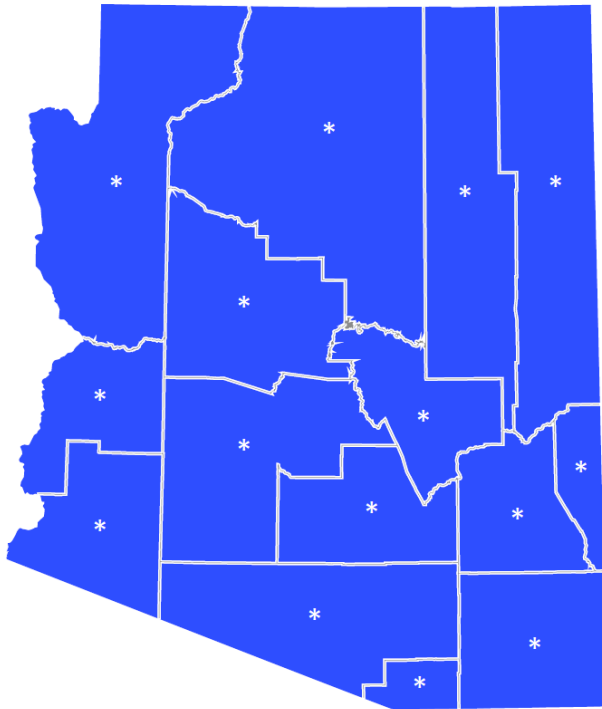
Arizona Influenza Activity Levels *(see definitions at the end of this report)*

	2016-2017	2015-2016	2014-2015	2013-2014	2012-2013
This Week	Regional	Widespread	Regional	Regional	Local
Last Week	Regional	Widespread	Regional	Regional	Regional
Date First Case Confirmed, no travel	Oct. 13, 2016	Oct. 4, 2015	Nov. 3, 2014	Oct. 4, 2013	Oct. 30, 2012
Weeks with Widespread Activity	Weeks 6-9	Weeks 5-14	Weeks 1-6	Weeks 3-8	Weeks 1-7

Laboratory-Confirmed Cases Reported, by County, 2016-2017 Influenza Season

(Includes ALL reported lab-confirmed flu reports, regardless of subtype)

County	2016-2017 Season	Past Three Weeks	Last Week
Apache	252	49	3
Cochise	185	60	14
Coconino	592	66	4
Gila	133	66	12
Graham	115	34	8
Greenlee	16	11	1
La Paz	11	1	0
Maricopa	2,787	706	163
Mohave	392	21	9
Navajo	219	38	15
Pima	899	333	134
Pinal	366	121	36
Santa Cruz	57	13	4
Yavapai	454	69	25
Yuma	81	27	12
Total	6,559	1,615	440



Key:

- * = Any activity reported this season
- = Activity reported in the previous three weeks
- = No activity reported in the previous three weeks

Age of Reported Influenza Cases

The age groups most affected by influenza vary somewhat season-to-season, depending in part on the circulating influenza types and subtypes and any existing immunity in the community. Variations in age groups of reported influenza cases can also be caused by differences in laboratory testing and reporting practices year-to-year.

Age Group of Reported Influenza Cases, 2013-2014 through 2016-2017 Seasons

Age Group	2016-2017 Season (N=6,559)	2015-2016 Season (N=23,689)	2014-2015 Season (N=12,594)	2013-2014 Season (N=12,443)
0 to 4 years	898 (14%)	4,104 (17%)	2,152 (17%)	2,319 (19%)
5 to 18 years	1,467 (22%)	5,099 (22%)	3,366 (27%)	2,797 (22%)
19 to 49 years	1,584 (24%)	7,357 (31%)	3,044 (24%)	4,478 (36%)
50 to 64 years	847 (13%)	3,159 (13%)	1,222 (10%)	1,563 (13%)
65 years or older	1,723 (26%)	3,879 (16%)	2,669 (21%)	1,205 (10%)
Unknown age	40 (1%)	91 (1%)	141 (1%)	81 (1%)

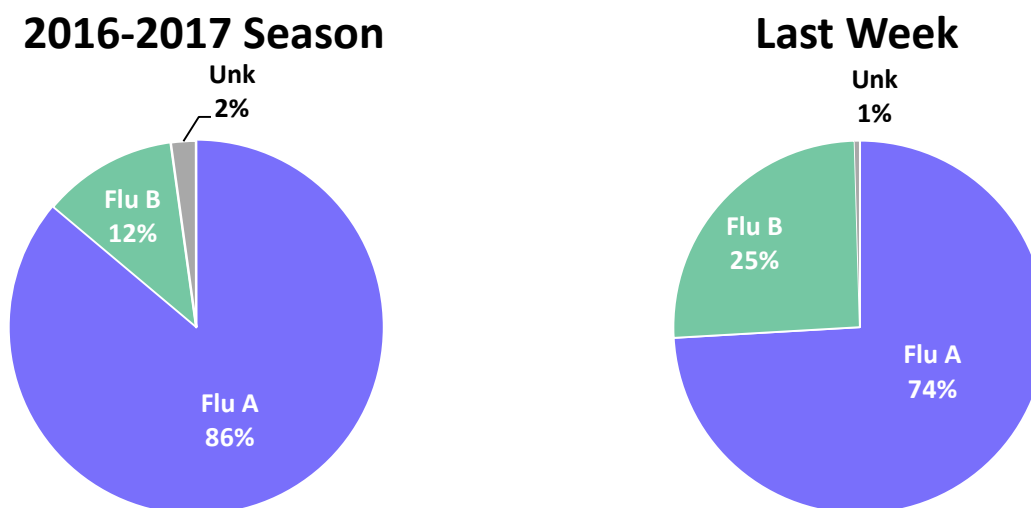
Age Group by Type, 2016-2017 Influenza Season

Age Group	All Confirmed Cases (N=6,559)	Influenza A (N=5,649)	Influenza B (N=767)	Unknown Type (N=143)
0 to 4 years	898 (14%)	755 (13%)	113 (15%)	30 (21%)
5 to 18 years	1,467 (22%)	1,204 (21%)	217 (28%)	46 (32%)
19 to 49 years	1,584 (24%)	1,356 (24%)	196 (26%)	32 (22%)
50 to 64 years	847 (13%)	733 (13%)	100 (13%)	14 (10%)
65 years or older	1,723 (26%)	1,566 (28%)	137 (18%)	20 (14%)
Unknown age	40 (1%)	35 (1%)	4 (1%)	1 (1%)

Influenza Types and Subtypes

There are two main types of influenza – Type A and Type B – that cause illness in people. Influenza A viruses can be further divided into subtypes such as A (H1), or A (H3). While most tests can distinguish between influenza A and B, only specialized testing such as that done at the State Public Health Laboratory and a few other labs around the state can differentiate subtypes. Viral culture or molecular testing (reverse transcriptase polymerase chain reaction or RT-PCR) are the methods used to identify subtypes; knowing the type and subtype of the influenza viruses circulating can help health professionals make the best treatment and vaccination decisions.

Influenza Type, from all tests reported



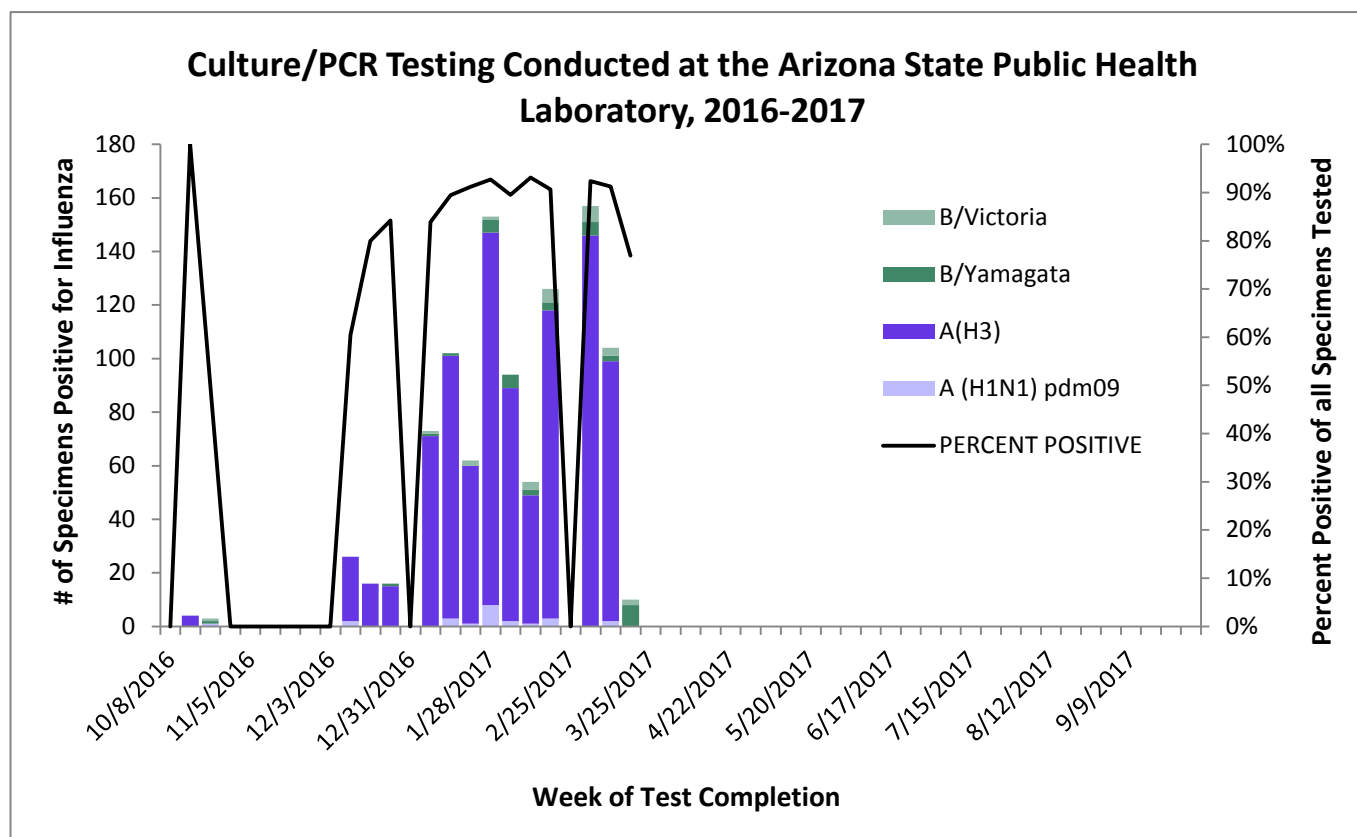
Influenza Type, by Season

	2016-2017 Season Number	2016-2017 Season Percent	2015-2016 Number (Percent)	2014-2015 Number (Percent)	2013-2014 Number (Percent)
Total	6,559	100%	23,689 (100%)	12,594 (100%)	12,443 (100%)
Influenza A	5,649	86%	17,199 (73%)	11,013 (87%)	9,495 (76%)
Influenza B	767	12%	6,220 (26%)	1,428 (11%)	2,750 (22%)
Unknown	143	2%	270 (1%)	153 (1%)	198 (2%)

Influenza Subtype

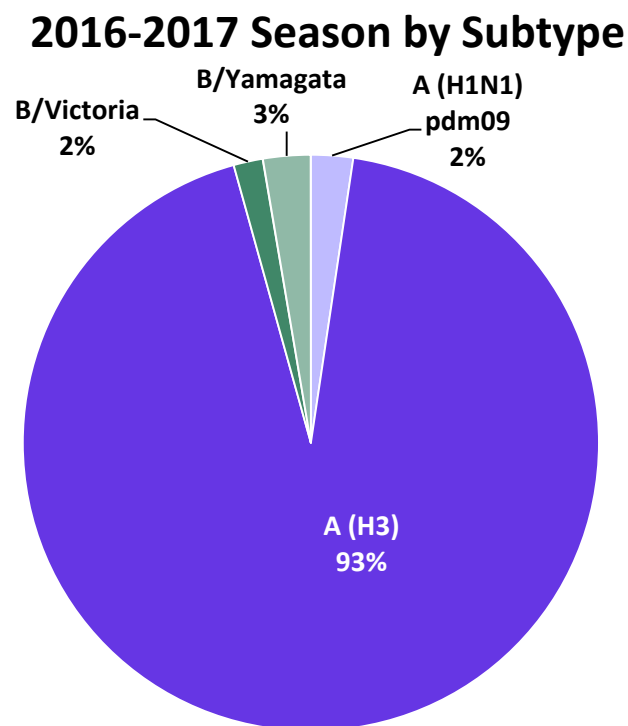
Data from the Arizona State Public Health Laboratory (ASPHL)

- 10 (77%) of 13 specimens tested positive for influenza at ASPHL last week: 2 influenza B/Victoria viruses and 8 influenza B/Yamagata viruses.



Influenza subtype, by season, from any laboratories performing culture or RT-PCR

	2016-2017 Season Number	2016-2017 Season Percent	2015-2016 Number (Percent)	2014-2015 Number (Percent)	2013-2014 Number (Percent)
Influenza Subtypes	1,271	100%	4,871 (100%)	2,202 (100%)	1,795 (100%)
Influenza A (H1N1) pdm09	30	2%	1,298 (27%)	5 (0.1%)	1,480 (82%)
Influenza A (H3)	1,186	93%	1,344 (28%)	2,127 (97%)	151 (8%)
Influenza B/Victoria	21	2%	1,248 (26%)	20 (1%)	128 (7%)
Influenza B/Yamagata	34	3%	981 (20%)	50 (2%)	36 (2%)



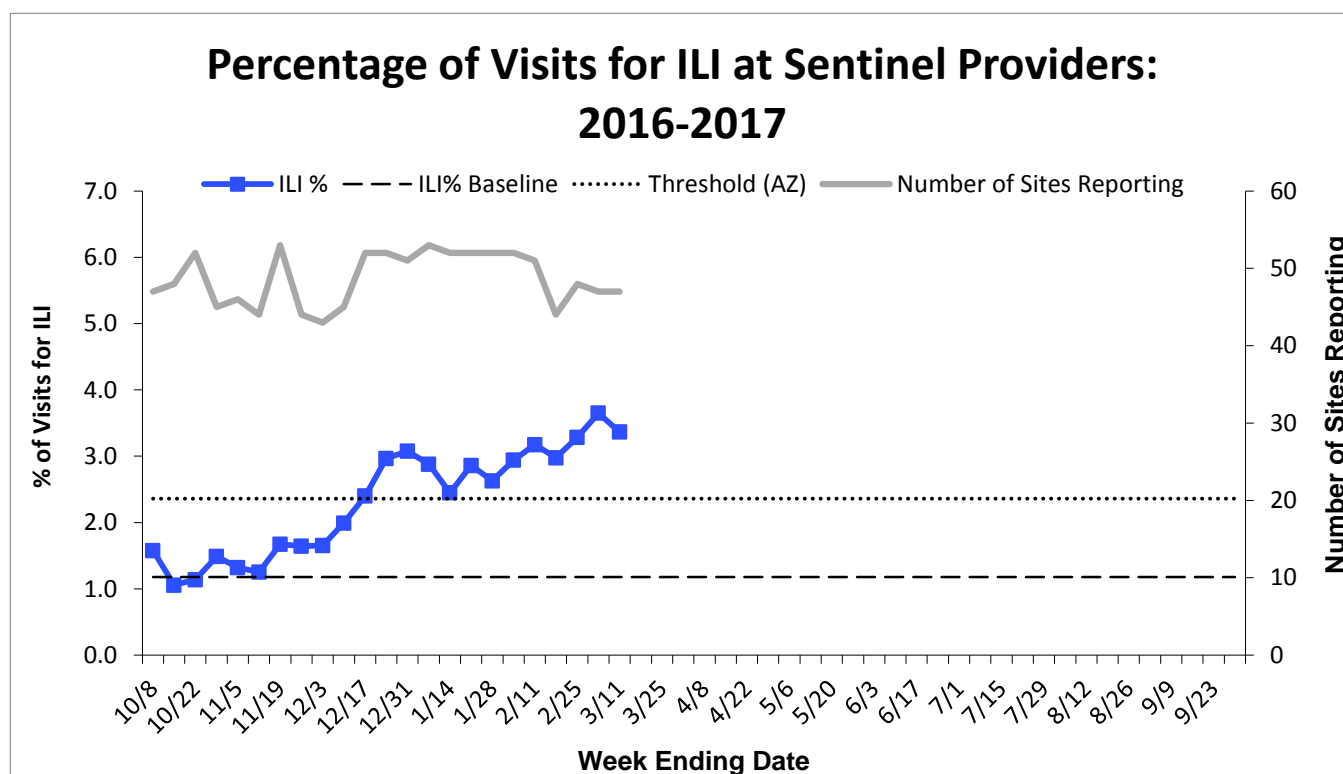
Influenza subtyping of culture or RT-PCR results, by region

Region*	Influenza A (H1N1) pdm09	Influenza A (H3)	Influenza B/Victoria	Influenza B/Yamagata	Total
Arizona	30 (2%)	1,186 (93%)	21 (2%)	34 (3%)	1,271 (100%)
Central	17 (2%)	699 (93%)	10 (1%)	28 (4%)	754 (100%)
Northern	0 (0%)	173 (98%)	0 (0%)	3 (2%)	176 (100%)
Southern	8 (4%)	198 (91%)	11 (5%)	1 (0%)	218 (100%)
Western	5 (4%)	116 (94%)	0 (0%)	2 (2%)	123 (100%)

Influenza-Like Illness (ILI) Surveillance from Sentinel Outpatient Providers

ILI is defined as a fever of at least 100°F plus either a cough or a sore throat. In weeks when a relatively low number of enrolled facilities report data, the ILI proportion may not be as representative of Arizona activity as for other weeks. The state ILI baseline is 1.2% and the epidemic threshold is 2.4%*.

	Week 10	Week 9
Proportion of patient visits to sentinel providers for ILI	3.4%	3.7%
Comparison to epidemic threshold*	Above threshold	Above threshold
Intensity level (<i>see definitions at the end of report</i>)	Moderate	Moderate



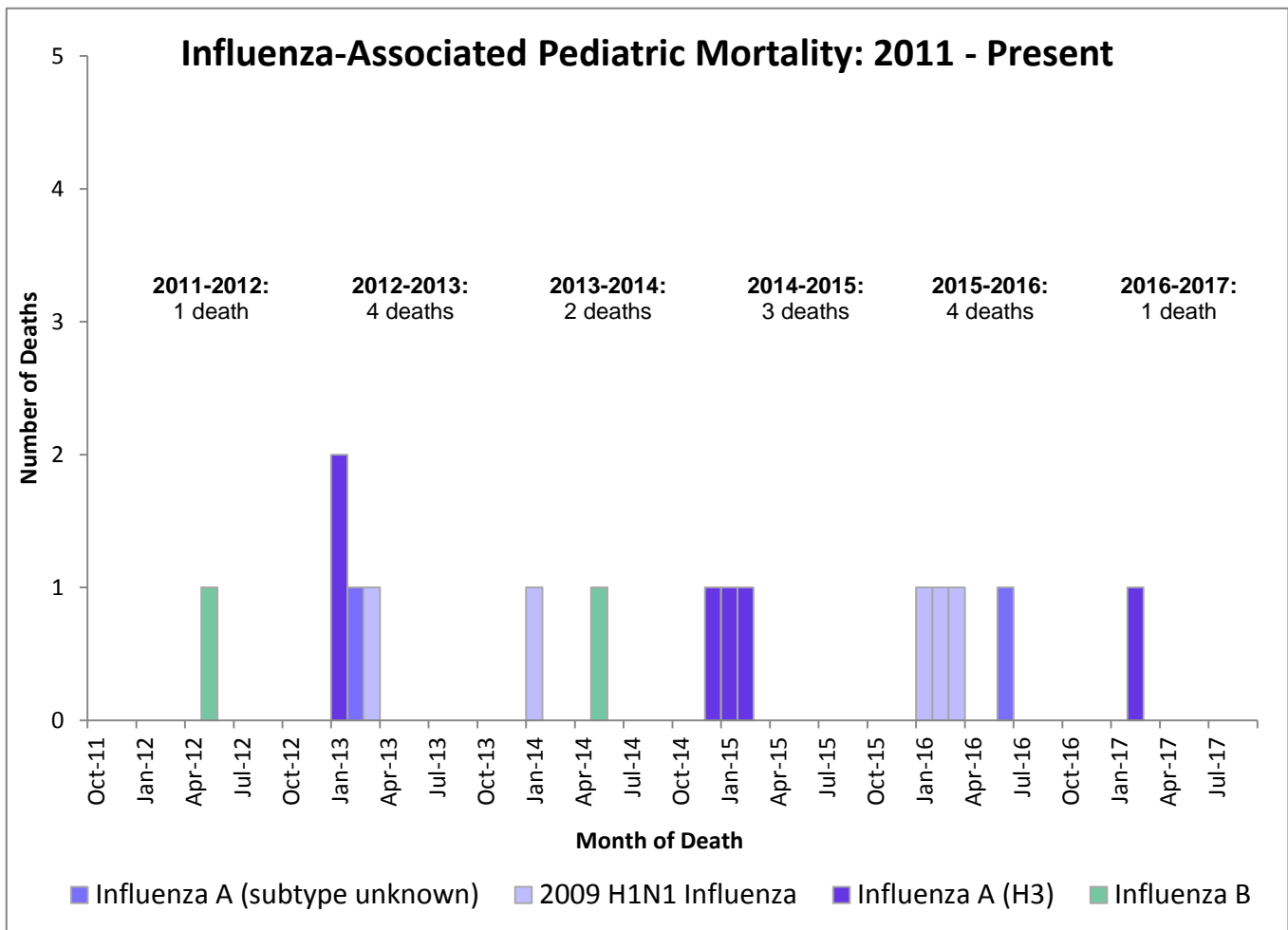
*Note: The baseline is defined as the mean of the state ILI% in weeks in the 2013-2016 flu seasons in which two or more consecutive weeks each accounted for less than 2% of the season's total number of specimens testing positive for influenza at the Arizona State Public Health Laboratory. The epidemic threshold is defined as the mean plus two standard deviations.

Mortality Surveillance

Influenza-associated Pediatric Deaths

Influenza-associated pediatric deaths are reportable to the public health departments in Arizona. The 2008-2009 and 2009-2010 seasons showed an increase in influenza-associated deaths in children related to the circulation of the 2009 H1N1 strain. One to five deaths were reported in each of the other seasons since 2004.

One influenza-associated pediatric death has been reported for the 2016-2017 season in a Pima County resident. This case was PCR positive for influenza A (H3).



Glossary of Key Terms:

2016-2017 Influenza Season – The season is defined by surveillance weeks. The first day of the 2016-2017 influenza season was October 2nd, 2016, or week 40 and the 2016-2017 surveillance season will continue through September 30th, 2017, or week 39.

Regions – Regions in Arizona are defined by county: Central (Gila, Maricopa, Pinal); Northern (Apache, Coconino, Navajo, Yavapai); Southern (Cochise, Graham, Greenlee, Pima, Santa Cruz); Western (La Paz, Mohave, Yuma)

Activity Levels: Indicator of the geographic spread of influenza activity, reported to CDC by all states each week.

Widespread: Increased influenza-like illness from sentinel providers (ILI) in three or more regions and large numbers of laboratory-confirmed influenza cases in those regions.

Regional: Increased ILI in two regions and elevated numbers of laboratory-confirmed influenza cases in those regions.

Local: Increased ILI in one region and elevated numbers of laboratory-confirmed influenza cases in that region.

Sporadic: No increase in ILI activity and only isolated laboratory-confirmed influenza cases.

No Activity: No increase in ILI activity and no laboratory-confirmed influenza cases.

Intensity Levels: Intensity levels are based on the percent of outpatient visits in a state due to ILI and are compared to the average percent of ILI visits that occur during spring and fall weeks with little or no influenza virus circulation. Intensity levels range from minimal, corresponding to ILI activity from outpatient clinics being below the average, to intense, which would correspond to ILI activity from outpatient clinics being much higher than average.